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TITLE : MANUFACTURE OF SUPER PLASTIC ALUMINUM ALLOY

ABSTRACT : PURPOSE: To obtain an Al alloy whose super plasticity is further improved, by applying homogenizing heat treatment in two steps to an Al alloy ingot, then hot and cold rolling said ingot by cross rolling.

CONSTITUTION: The Al alloy ingot of systems of Al-Cu, Al-Mg, Al-Mg-Si, Al-Zn-Mg is homogenizing heat treated at 400~550°C, then subjected to said treatment at 300~550°C. Said ingot is hot rolled at 300~550°C, then heating held in 1~2 steps at said temp., and precipitation treated. Next, cooled by $\geq 30^{\circ}\text{C}/\text{hr}$ rate, cold rolled by $\geq 30\%$ or 20~60%, then annealed for low temp. softening and cold rolled at $\geq 300^{\circ}\text{C}$. Thereat, during hot rolling, rolled by 10~40% reduction quantity, then cross rolled against the remaining reduction quantity. During cold rolling, cross rolling by 10~40% reduction quantity is added. By this method, the movement of dislocated precipitates is obstructed, the fine particle structure is maintained and the Al alloy whose super plastic elongation is improved is obtained.

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